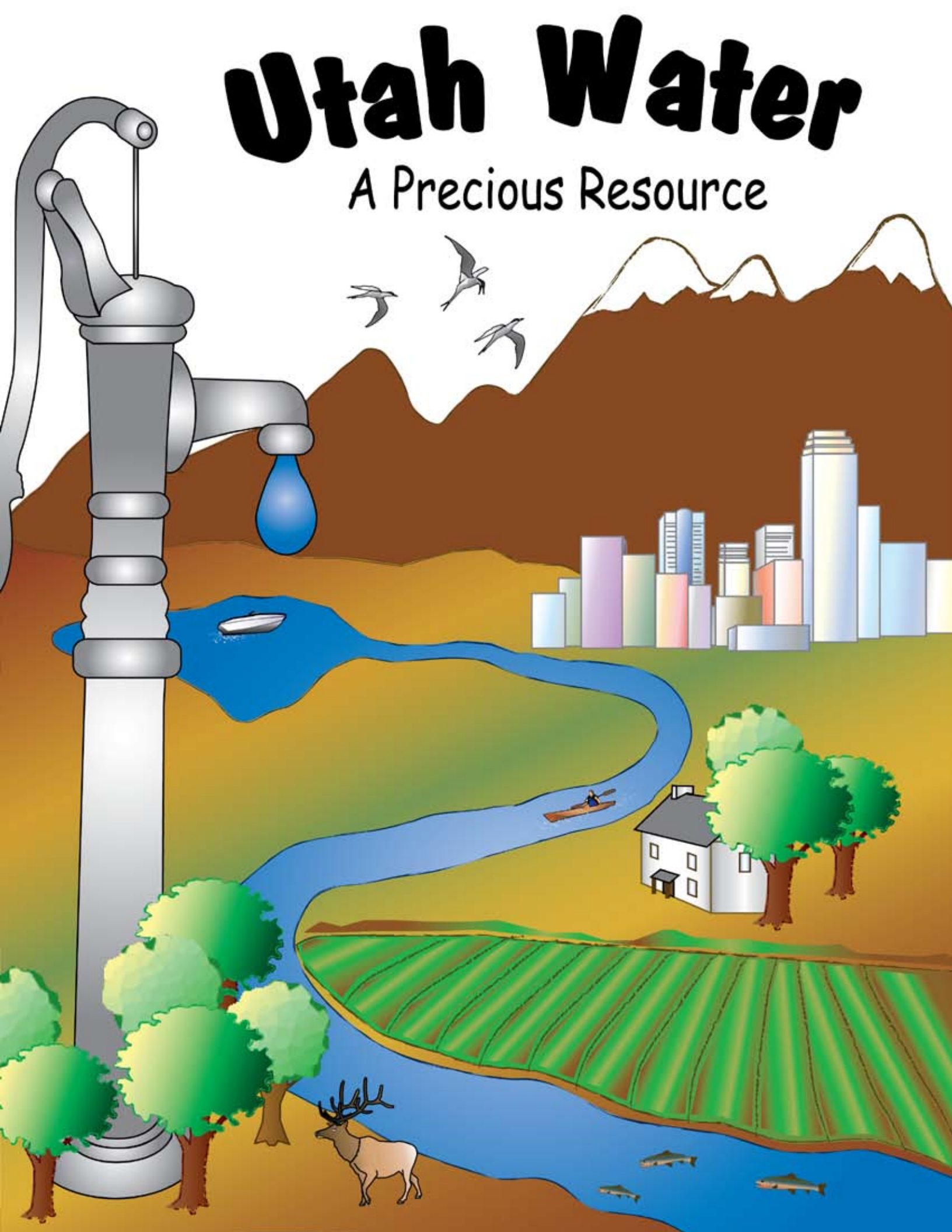
Utah Water

A Precious Resource



Words to Know

Aquifer	An underground layer of rock or soil that holds water
Condensation	The process of a gas turning into a liquid
Conservation	The process of using a resource wisely so it will not be used up
Evaporation	The process of a liquid changing into a gas or vapor
Glacier	A huge mass of ice formed on land by compacted snow that moves slowly due to its own weight
Groundwater	Water beneath the Earth's surface
Percolation	To pass through a porous substance
Precipitation	Water that falls to the Earth as rain, snow, hail, or sleet
Recharge	Water that enters an aquifer from the surface
Reservoir	A pond, lake, or basin, either natural or man-made, for the storage, use, and control of water
Runoff	Water from precipitation that flows into surface streams, rivers, and lakes rather then soaking into the ground
Transpiration	The process by which plants release water vapor through their leaves
Watershed	The land area that supplies water to a river system or basin

Water: It's Amazing

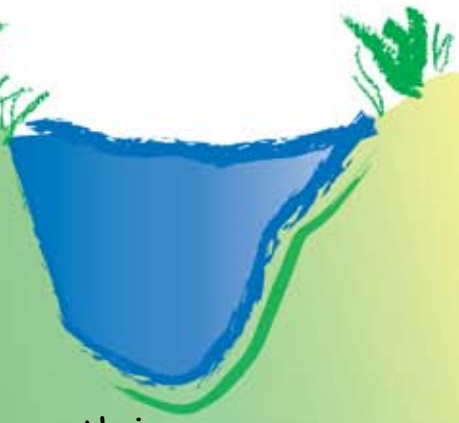
Come along as we learn about water. We will learn where it comes from, how we get it, how we use it, and how we can use it better.

Water is an amazing substance. It is found almost everywhere on Earth. In fact, about 70% of the Earth is covered by water. It is found in rivers, lakes, oceans and in the ground. We even find it in plants and animals. Did you know that your body is made up mostly of water? Your brain and blood are almost all water; even your bones contain water.

Our lives are centered around water. We use it to drink, irrigate crops and landscapes, and to make electricity and other products. We use it for recreation. We even store it for future use. Water is constantly moving. It moves from the oceans to the clouds, then from the clouds to the Earth's surface. Some seeps into the ground and some runs off into our rivers, lakes, and back to our oceans.

How many words can you make out of the letters in ...

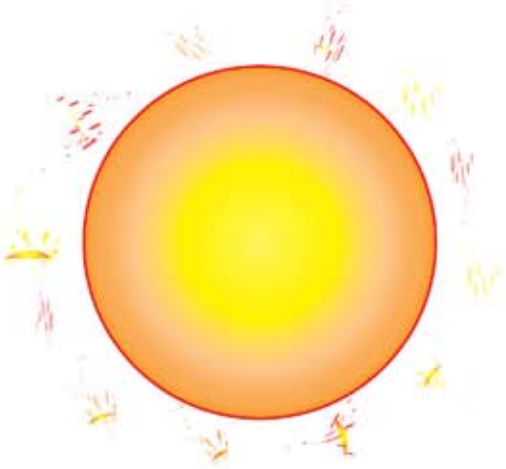
WATER



Did You Know?
Water exists on earth in three states:
solid, liquid, and gas

Water covers about 70% of the Earth's surface. Most of the Earth's water is found in the oceans. The remaining 3% is fresh water.

Oceans	97%
Ice and Glaciers	2%
Usable Freshwater	1%



The Water Cycle

Water is always on the move. We call this the water cycle.

The water cycle requires energy. This energy comes from the Sun. Water evaporates when heated by the sun. The higher up you go the colder it gets. Cool water vapor condenses to form clouds. Precipitation is water that falls as rain, snow, sleet, or hail. Runoff is water that flows on the surface of the ground. Water can be stored in lakes, reservoirs, and in the ground. Plants draw water through their roots and this water is given off through the leaves as water vapor. This is called transpiration.

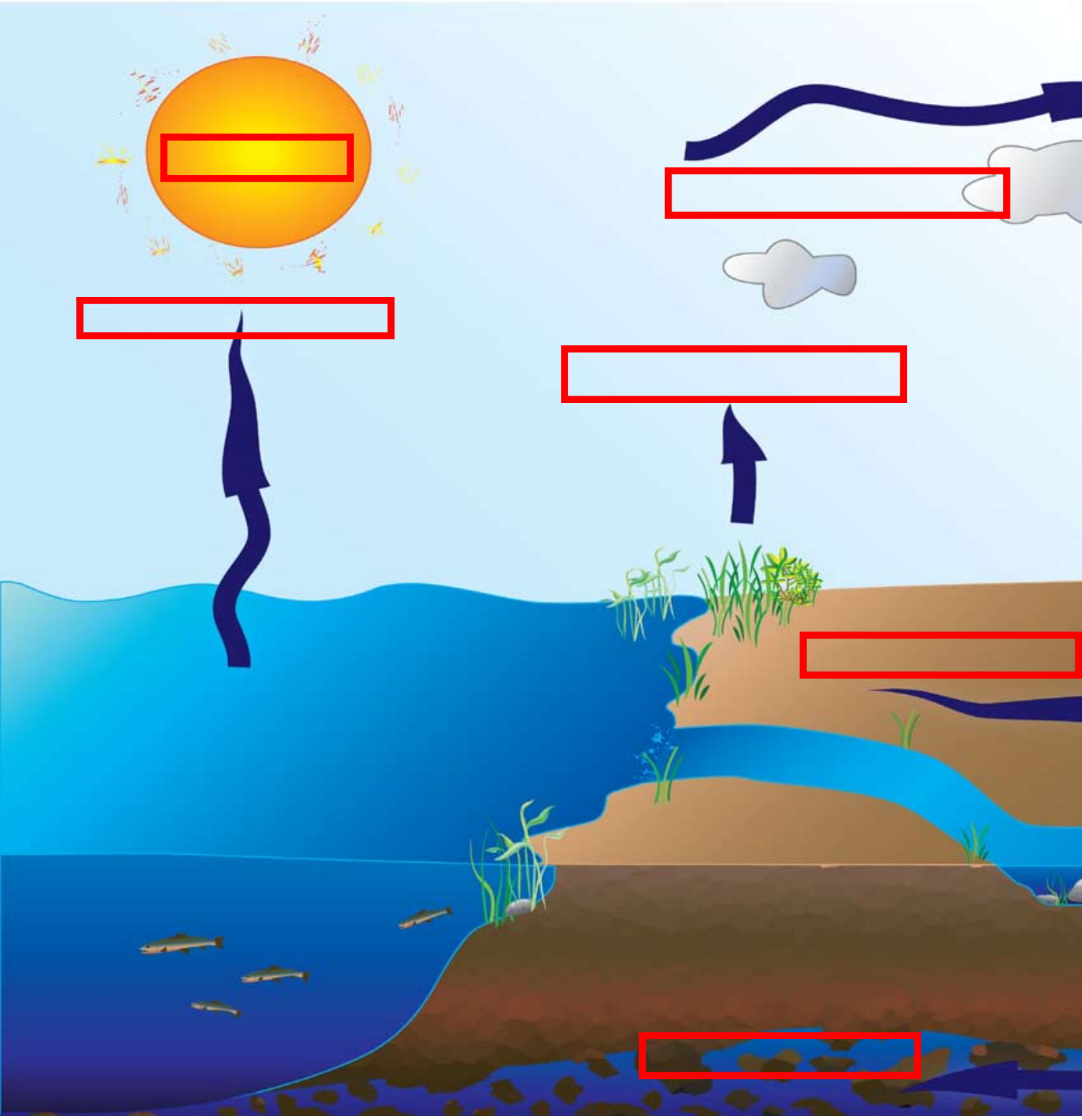
Some precipitation and surface water seeps or percolates into the ground. This water may collect in rocks like sandstone. These underground sponges are called aquifers. Groundwater will move until it comes back to the surface. Here it will evaporate. The cycle starts again.

As groundwater moves through the ground, most impurities get filtered out. The water cycle is nature's way of cleaning the water.

Water is a renewable resource. The water the Egyptians used is the same water that we use today.

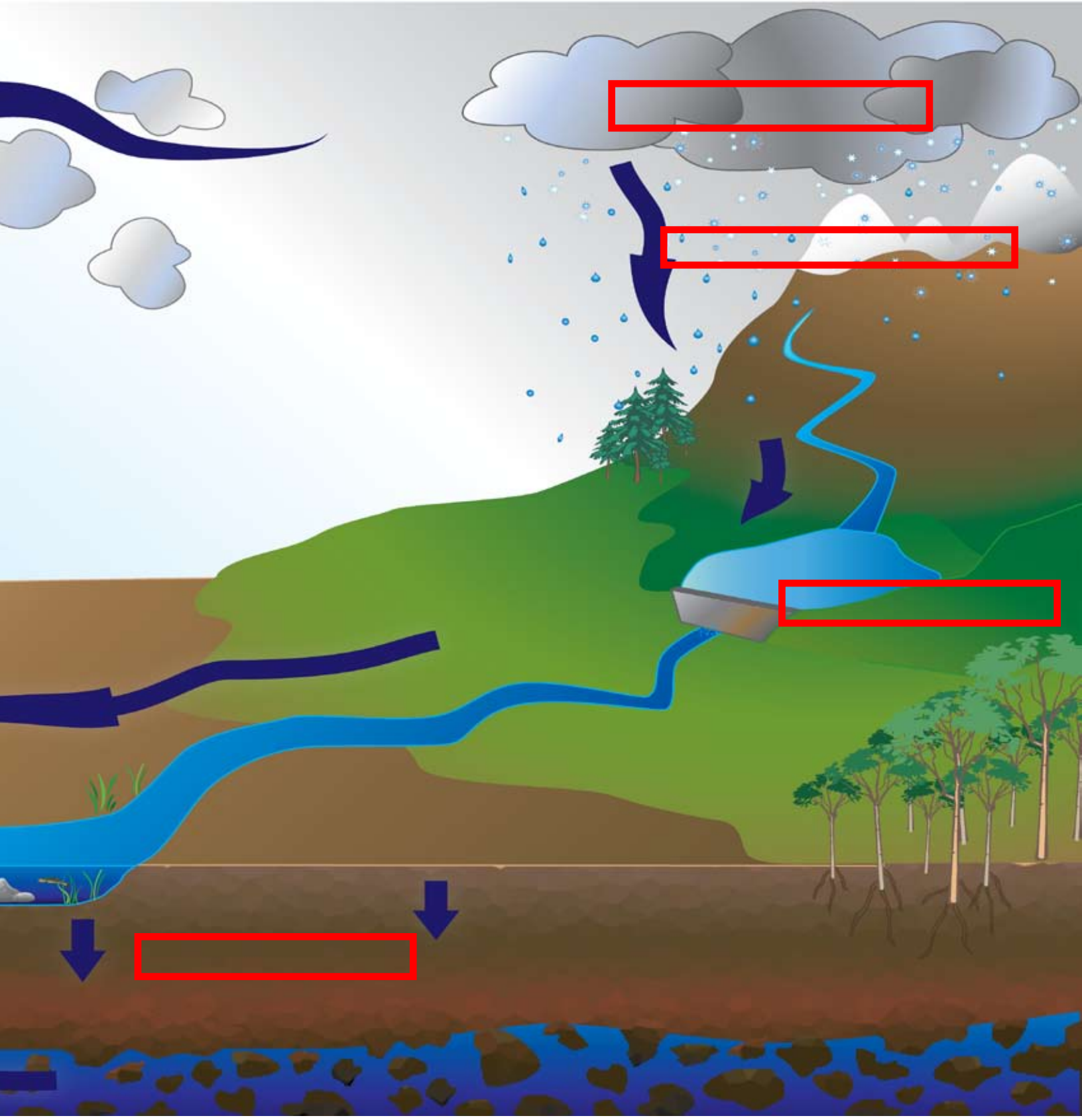
Try This

Fill a glass with ice and water, being very careful not to spill any water. Set the glass aside for 5 minutes. Observe the outside of the glass and the surface that it is sitting on. What do you see? Where did it come from?



Can you label the different

Condensation Evaporation Runoff Reservoir Precipitation

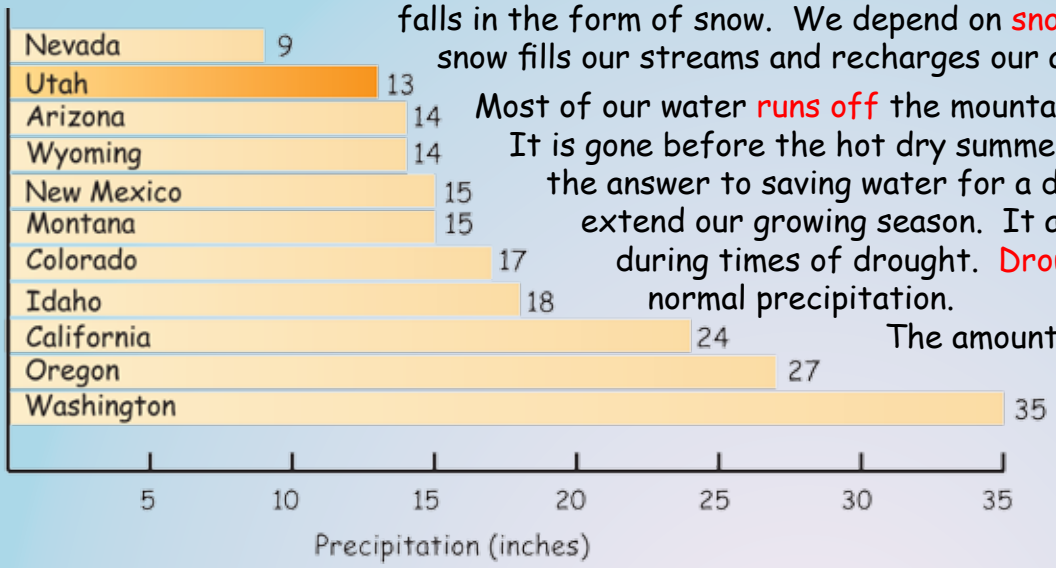


parts of the water cycle?

Percolation Transpiration Cloud Sun Groundwater

Water in Utah

The state of Utah is very dry. Utah is the second driest state in the nation. The graph below shows how we compare to the states around us. We normally receive 13 inches of precipitation a year. Most of this falls in the form of snow. We depend on snow for our water supply. Melting snow fills our streams and recharges our aquifers.



Most of our water runs off the mountains in the spring and early summer. It is gone before the hot dry summer days are here. Reservoirs are the answer to saving water for a dry day. Storing water allows us to extend our growing season. It also allows us to store water to use during times of drought. Droughts occur when we receive below normal precipitation.

The amount of precipitation varies greatly throughout the state. Some parts of Utah receive less than 10 inches a year. The mountains receive around 50 inches. The higher up in elevation you go the more precipitaion that area receives.

Water is the driver of Nature.
- Leonardo da Vinci

We forget that the water cycle and the life cycle are one.
- Jacques Cousteau

Water sustains all.
-Thales of Miletus

If there is magic, on this planet it is contained in water.
Loren Eiseley

In Utah, the 13 inches of preciptation we receive is shared by the plants, animals, humans and natural processes.

Utah is divided into 11 watersheds or river basins. A river basin is like a kitchen sink: the water drains into one place. All of the area that drains into one river is called a river basin.

Looking at the map below:

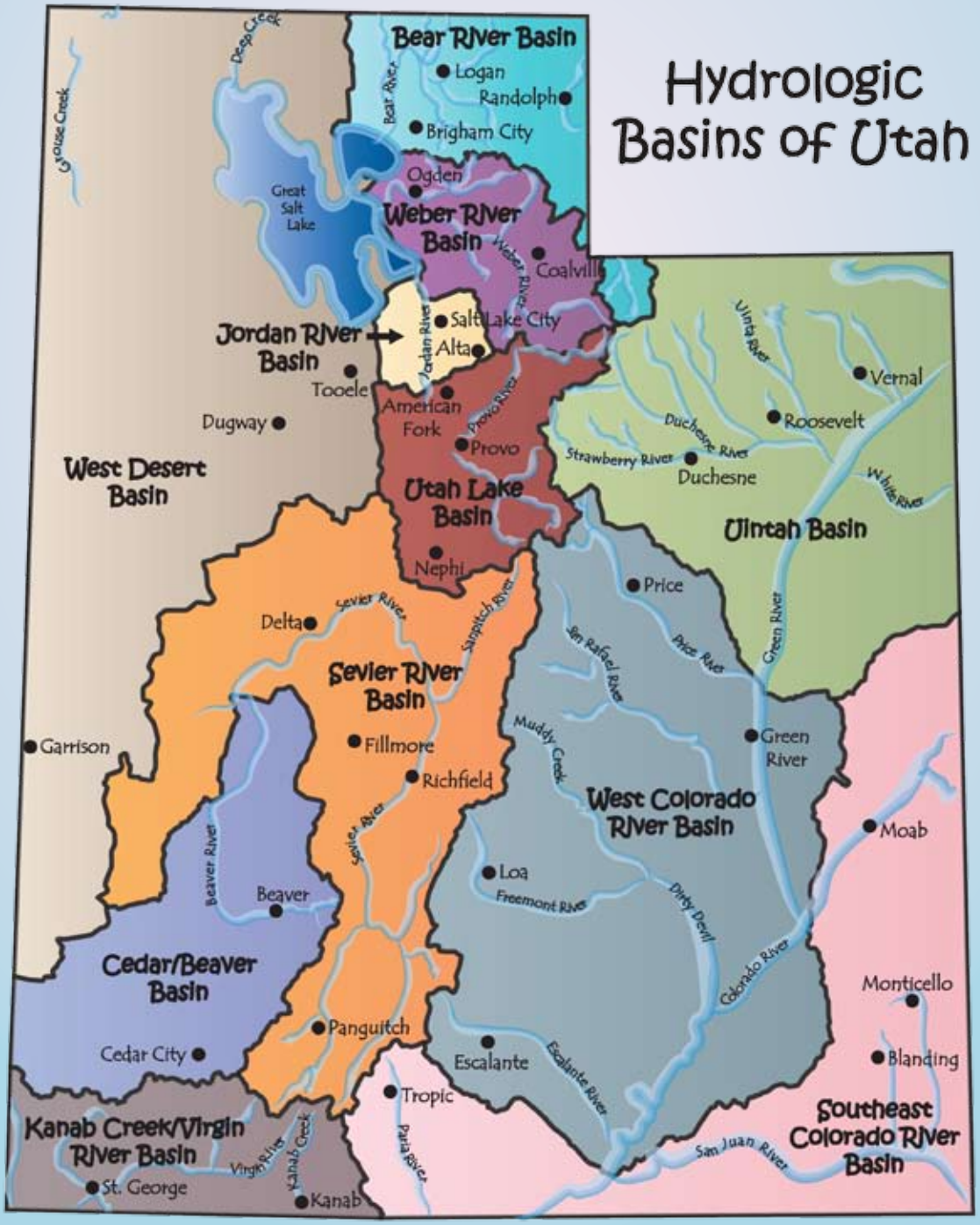
Can you find the river basin where you live?

_____

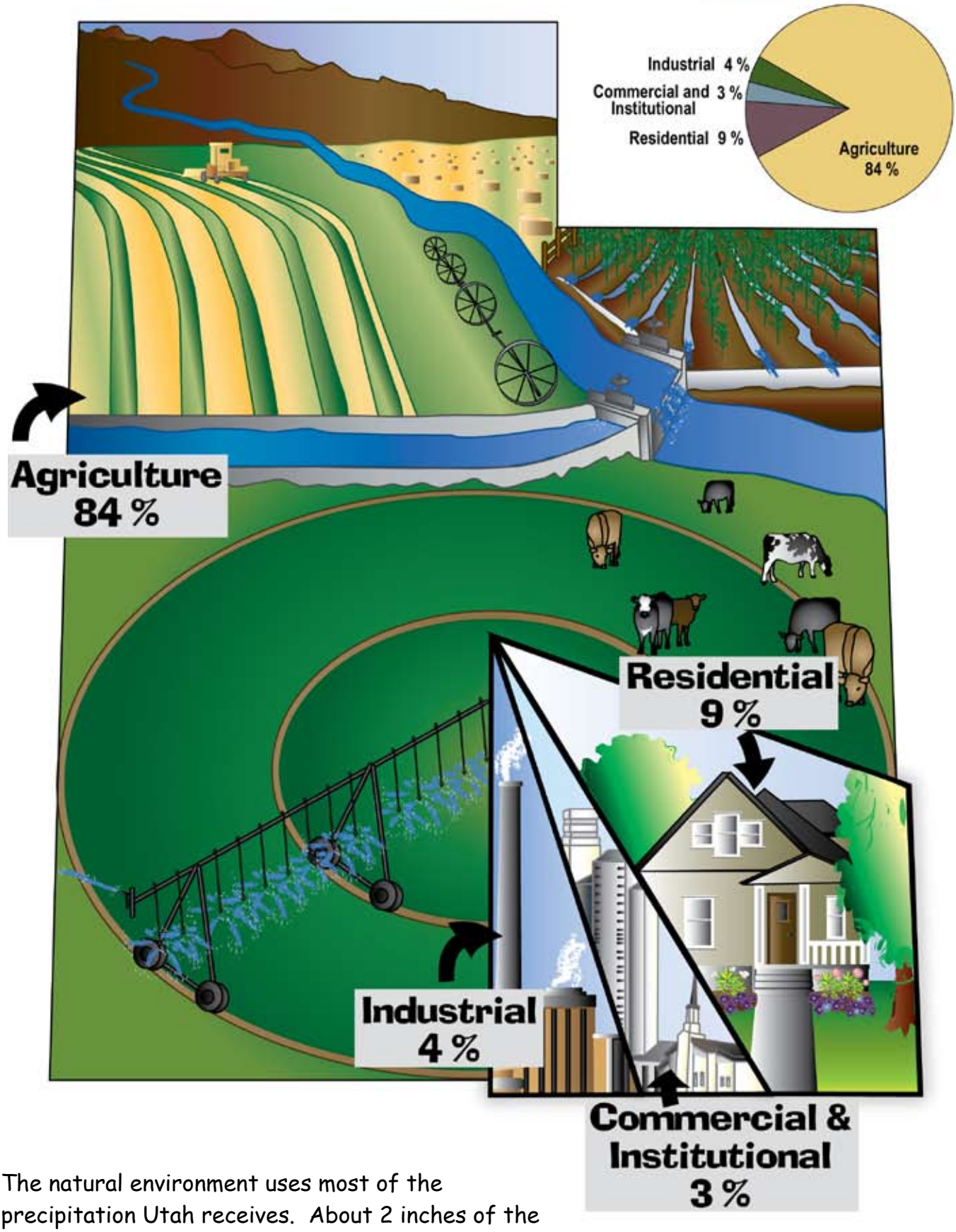
What are the major rivers and streams in your river basin?

_____

The Colorado River and one of its tributaries, the Green River, are the two largest rivers in Utah. Can you find them?



How does Utah use its water?



The natural environment uses most of the precipitation Utah receives. About 2 inches of the 13 inches Utah receives is in our surface water and groundwater. We don't use all of this water. We use less. The map above shows how Utahans use water. Our food comes from agriculture which uses the most water.

What happens to water before it reaches my home?

Utah's water affects the life of every Utahan. We must manage our water resources carefully. Utah's water belongs to the people. Utah's water law states that water should be put to the best use for public benefit.

Water is distributed to our homes by water companies, water conservancy districts and cities.

Do you know who delivers water to your home and school?

_____

(hint... ask your teacher or parents)

Before water is delivered for household or commercial uses, it is treated to remove bacteria and other contaminants. The water treatment process can range from a simple filter and chlorination process to a complex treatment plant. A high quality groundwater source, may need very little, if any, treatment. For larger public water systems, the treatment process is much more complicated and will likely include a combination of processes. The picture on this page shows how water is treated.

As our population grows, water will become more important. Conserving water will help ensure that there is enough for everyone.

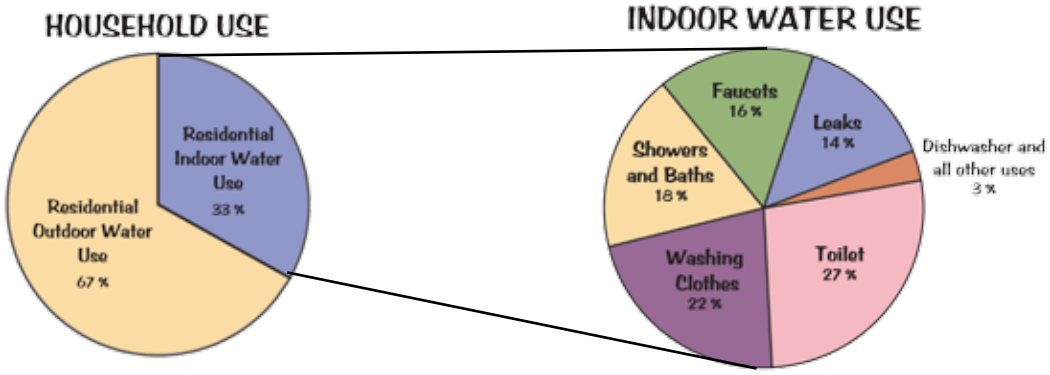
We need to learn to use our water wisely.

SLOW THE FLOW SAVE H2O

www.slowtheflow.org

The best way to make our water supply last longer is to practice water conservation. Water conservation means using water wisely. Everyone can practice water conservation. The first step is to be aware of how precious water is. We also need to know how much we use. We cannot live without water. Remember every drop counts. If we each save a little, we all save a lot.

In Utah we use about 185 gallons per person per day at our homes. Inside our homes we each use about 70 gallons a day. This is about two full bathtubs. This means that we use about 2/3 of our water for our lawns and gardens. In one year that would be about 3,800 full bathtubs.



We need to install water efficient plumbing fixtures and fix leaks. This would reduce the amount of water we use inside by 25 percent. But most of our water is used outside. Because of this, the easiest way to save water is to use less outside in our yards. If we let our parents know that we shouldn't water everyday we could save thousands of gallons of water. If we all work together to conserve water, we can make sure there is enough water for future generations.

Become an example of conservation in your home. Help promote conservation as a wise and important way of life. For more ideas about conservation find us on the web at www.conservewater.utah.gov

What Can You Do?

Here are some ideas from kids like you:

- Don't use your toilet for a trash can.
- Save water in the fridge.
- Don't over water your lawns and landscapes.
- Turn off the water when brushing your teeth.
- Wash only full loads of dishes and clothes.
- Take shorter showers.

How can you save water?_____

Can you circle some places where you can save water?

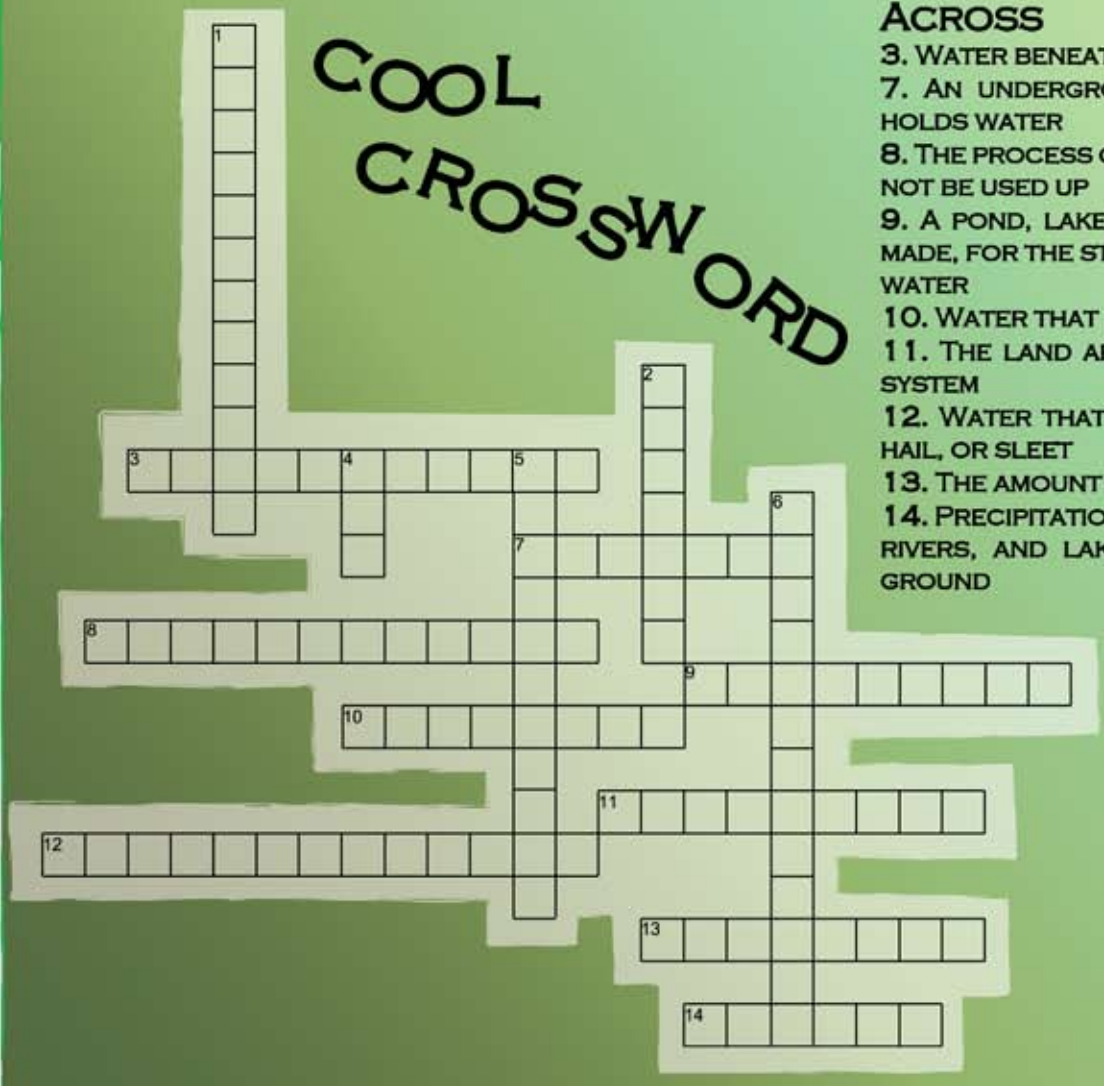
WATER WORD SEARCH

CLOUD
CONDENSATION
CONSERVATION
EVAPORATION
GLACIER
GROUNDWATER
ICE
OCEAN
PERCOLATION
PRECIPITATION
RAIN
RECHARGE
RIVER
RUNOFF
SNOW
SUN
TRANSPIRATION
WATERVAPOR

N	S	W	S	R	N	V	G	U	V	T	R	P	T	R
V	O	N	A	A	A	L	K	T	A	E	Q	R	K	E
B	M	I	E	T	A	I	I	N	T	D	A	E	C	C
W	D	C	T	C	E	C	N	A	C	N	R	C	U	H
N	O	D	I	A	E	R	W	L	S	G	J	I	T	A
O	R	E	U	J	V	D	V	P	Z	H	F	P	V	R
I	R	R	C	O	N	R	I	A	O	R	W	I	R	G
T	V	R	M	U	L	R	E	V	P	U	N	T	E	E
A	S	N	O	W	A	C	F	S	G	O	A	A	V	S
R	Q	R	Q	T	B	F	F	O	N	U	R	T	I	U
O	G	S	I	I	I	R	S	X	B	O	J	I	R	N
P	J	O	E	Z	U	D	O	C	E	D	C	O	H	V
A	N	M	N	O	I	T	A	S	N	E	D	N	O	C
V	P	E	R	C	O	L	A	T	I	O	N	B	E	L
E	D	W	Y	Z	D	G	X	X	F	V	V	E	K	J

Water comes in different forms and is used in different ways. See if you can find some of the words on the left. They are written in different directions. Circle the letters that make a word.

COOL CROSSWORD



ACROSS

3. WATER BENEATH THE EARTH'S SURFACE
7. AN UNDERGROUND LAYER OF ROCK OR SOIL THAT HOLDS WATER
8. THE PROCESS OF USING RESOURCES WISELY SO IT WILL NOT BE USED UP
9. A POND, LAKE, OR BASIN, EITHER NATURAL OR MAN-MADE, FOR THE STORAGE, REGULATION, AND CONTROL OF WATER
10. WATER THAT ENTERS AN AQUIFER FROM THE SURFACE
11. THE LAND AREA THAT SUPPLIES WATER TO A RIVER SYSTEM
12. WATER THAT FALLS TO THE EARTH AS RAIN, SNOW, HAIL, OR SLEET
13. THE AMOUNT OF MOISTURE IN THE AIR
14. PRECIPITATION THAT FLOWS INTO SURFACE STREAMS, RIVERS, AND LAKES RATHER THEN SOAKING INTO THE GROUND

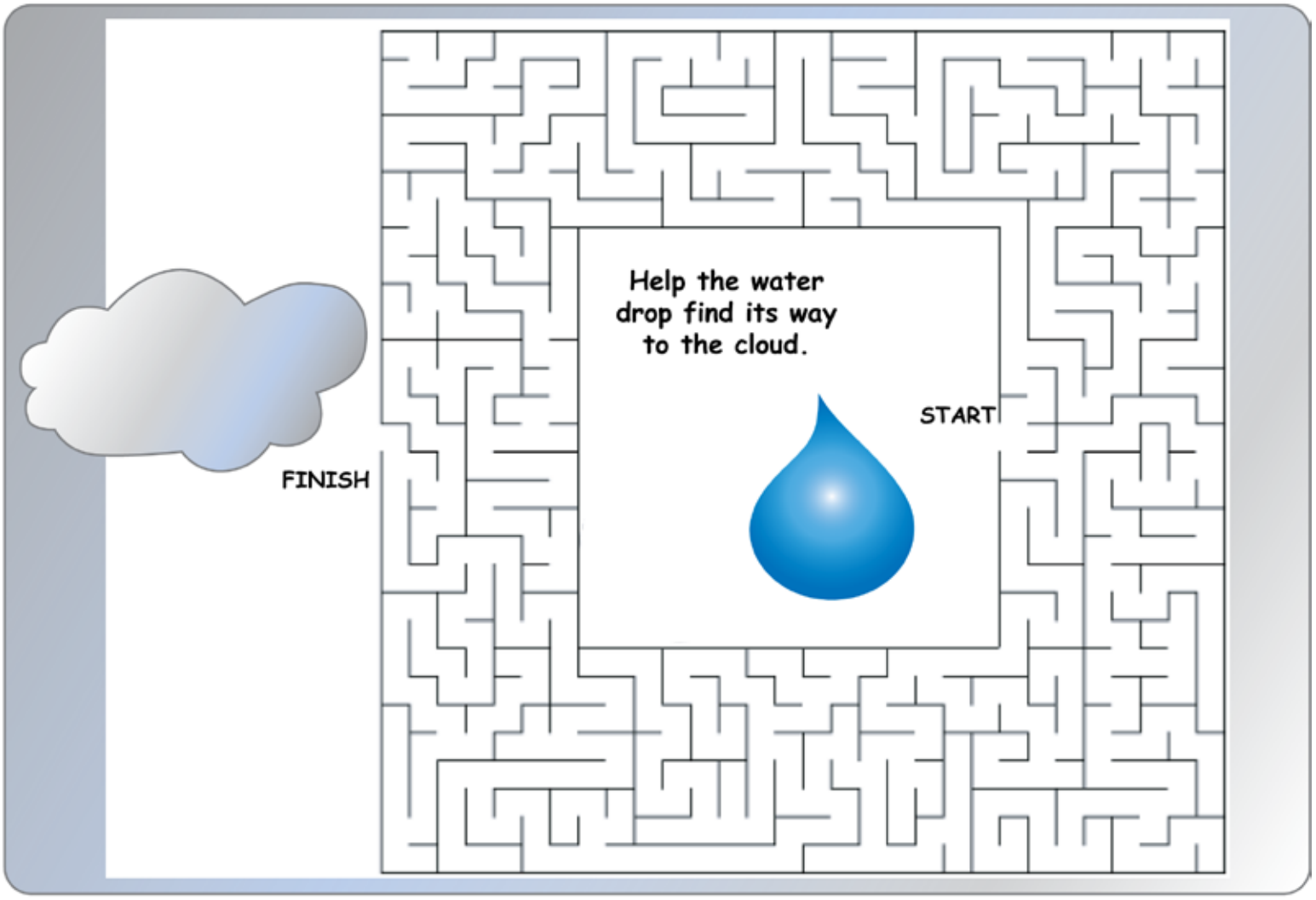
DOWN

1. THE PROCESS OF A GAS TURNING INTO A LIQUID
2. A HUGE MASS OF ICE FORMED ON LAND BY COMPACTED SNOW THAT MOVES SLOWLY DUE TO ITS OWN WEIGHT
4. CONDENSATION OF WATER ON COOL OBJECTS SUCH AS GRASS
5. THE PROCESS OF A LIQUID CHANGING INTO A GAS OR VAPOR
6. THE PROCESS BY WHICH PLANTS RELEASE WATER VAPOR THROUGH THEIR LEAVES

Fun Time

Match the terms on the left with the definitions on the right.

1. Evaporation	A. How much of the Earth's water is found in glaciers and ice caps?
2. Condensation	B. The process of water being given off by plant's leaves.
3. 97 %	C. The process of liquid water turning into water vapor.
4. 1 %	D. How much of the Earth's water is usable fresh water?
5. Precipitation	E. The process of water vapor turning into liquid water.
6. Transpiration	F. Water that falls to the Earth as rain, sleet, snow, or hail.
7. 2 %	G. How much of the Earth's water is found in the oceans and seas?



How much do you remember?

1. This percent of the earth's water that is frozen in ice. _____(pg 4)

2. Three steps of the water cycle are a._____ (pg 5)
   b. _____
   c._____

3. I live in this river / hydrologic basin _____ (pg 9)

4. In Utah, we use _____ gallons per person each day at our homes. (pg 12)

5. Utah normally receives _____ inches of precipitation each year. (pg 8)

6. The water cycle gets energy from the _____(pg 5)

7. Water found underground is called_____(pg 5)

8. All of the area that drains into one river is called a _____.(pg 9)

9. Cool water vapor_____ to form clouds. (pg 5)

10. We depend on_____ for our water supply. (pg 8)

11. What are two ways you can use water wisely?
    a. _____
    b._____(pg 12)

12. We must share Utah's water with a._____(pg 8)
    b._____
    c._____

13. _____% of the water we use at home is used outside. (pg 12)

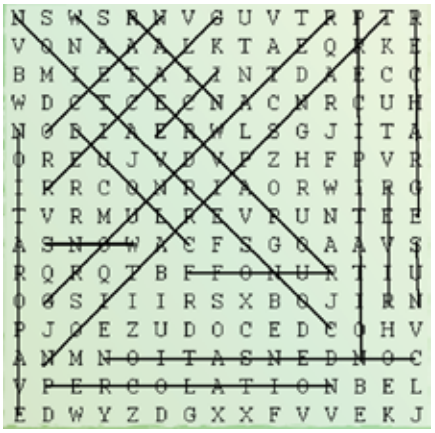
Activity Answers

Crossword (pg. 14)

Down
1. Condensation
2. Galcier
4. Dew
5. Evaporation
6. Transpiration

Across
3. Groundwater
7. Aquifer
8. Conservation
9. Reservoir
10. Recharge
11. Watershed
12. Precipitation
13. Humidity
14. Runoff

Word Search (pg. 14)



Matching (pg. 15)

1. C
2. E
3. G
4. D
5. F
6. B
7. A

For more information about water in Utah:

www.water.utah.gov

UTAH DNR WATER RESOURCES

Utah Division of Water Resources

Mission: To Plan, Conserve, Develop and Protect Utah's Water Resources

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